IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Roelvink et al.

Application No. 09/617,569

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Group Art Unit: 1648

Examiner: S. Foley

For: ANTIGENIC COMPOUNDS AND METHODS

CLAIMS PENDING UPON ENTRY OF THE AMENDMENT OF OCTOBER 12, 2001

1. A complex comprising (a) a virion having a surface and a lumen and comprising viral capsid proteins, (b) at least one non-native ligand displayed on the surface, which at least one ligand recognizes an epitope present on an immune effector cell, (c) at least one first nucleic acid encoding at least one first non-native antigen, and (d) at least one non-native second antigen displayed on the surface.

2. The complex of claim 1, wherein at least one ligand recognizes a protein on an antigen presenting cell.

3. The complex of claim 1, wherein at least one ligand recognizes CD-40.

4. The complex of claim 1, wherein at least one ligand comprises an RGD motif or three or more tandem lysine and/or histidine residues.

5. The complex of claim 1, wherein an antigen is a gene product from a pathogen or a malignant cell.

6. The complex of claim 1, wherein an antigen is a synthetic polypeptide having from about 1 to about 15 antigenic domains.

8. The complex of claim 1, wherein at least one first antigen is the same as at least one second antigen.

9. The complex of claim 1, wherein the virion comprises at least one chimeric protein comprising at least one first domain derived from a viral capsid protein and at least one second domain comprising at least one second antigen or at least one ligand.

10. The complex of claim 1, further comprising a liposome.

11. The complex of claim 1, wherein the virion is non-enveloped.

12. The complex of claim 1, wherein the virion elicits less virion-specific immunogenicity in a host animal than does a corresponding wild-type virion.

13. The complex of claim 1, wherein the virion comprises an adenoviral capsid.

14. The complex of claim 1, wherein the first nucleic acid comprises a viral genome.

15. The complex of claim 1, wherein the nucleic acid is expressed in an immune effector cell.

16. The complex of claim 1, further comprising at least one second nucleic acid sequence encoding at least one polypeptide that activates an immune effector cell.

17. The complex of claim 16, wherein at least one polypeptide comprises a domain derived from CD40-L or osteopontin.

18. The complex of claim 16, wherein at least one polypeptide is a cytokine.

19. A method of inoculating a mammal, the method comprising introducing the complex of claim 1 into a mammal under conditions sufficient for the mammal to mount an immune response to at least one first non-native antigen.

21. The method of claim 19, wherein the mammal comprises an immune effector cell, and wherein at least one immune response comprises an MCH-1 response within the immune effector cell.

22. The method of claim 19, wherein the mammal comprises an immune effector cell, and wherein at least one immune response comprises an MCH-2 response within the immune effector cell.

23. The method of claim 19, wherein the complex comprises at least one second nucleic acid sequence encoding at least one polypeptide that activates an immune effector cell, which is expressed within the mammal under conditions sufficient to activate the immune effector cell.

24. The method of claim 23, wherein the polypeptide comprises a domain derived from CD40-L or osteopontin.

25. The method of claim 23, wherein the polypeptide is a cytokine.

26. A method of immunizing a mammal, the method comprising introducing a complex comprising (a) a virion having a surface and a lumen and comprising viral capsid proteins, (b) at least one first nucleic acid encoding at least one first non-native antigen, and (c) at least one second non-native antigen displayed on the surface into a mammal under conditions sufficient for the mammal to mount at least one immune response to at least one of the antigens.

27. The method of claim 26, wherein the complex further comprises at least one non-native ligand displayed on the surface, which recognizes an epitope present on an immune effector cell.

28. The method of claim 26, wherein the mammal comprises an immune effector cell, and wherein at least one immune response comprises an MCH-1 response within the immune effector cell.

29. The method of claim 26, wherein the mammal comprises an immune effector cell, and wherein at least one immune response comprises an MCH-2 response within the immune effector cell.

30. The method of claim 26, wherein the complex comprises at least one second nucleic acid sequence encoding at least one polypeptide that activates an immune effector cell, which is expressed within the mammal under conditions sufficient to activate the immune effector cell.

31. The method of claim 30, wherein at least one polypeptide comprises a domain derived from CD40-L or osteopontin.

32. The method of claim 30, wherein the polypeptide is a cytokine.

40. A pharmaceutical composition comprising (a) the complex of claim 1, and (b) a physiologically-acceptable carrier.

43. The pharmaceutical composition of claim 40, wherein the complex comprises at least one second nucleic acid sequence encoding a polypeptide that activates an immune effector cell.

44. The pharmaceutical composition of claim 43, wherein at least one polypeptide comprises a domain derived from CD40-L or osteopontin.

45. The pharmaceutical composition of claim 43, wherein the polypeptide is a cytokine.

46. The complex of claim 16, wherein at least one polypeptide is CD40-L.

47. The complex of claim 16, wherein at least one polypeptide is osteopontin.

48. The method of claim 23, wherein at least one polypeptide is CD40-L.

49. The method of claim 23, wherein at least one polypeptide is osteopontin.

50. The method of claim 30, wherein at least one polypeptide is CD40-L.

51. The method of claim 30, wherein at least one polypeptide is osteopontin.